

AMERICAN

NOVEMBER - 1956

Cinematographer

THE OFFICIAL PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS



CARLOS OLL COR

This Issue ...

- Photographing "The Ten Commandments"
- Simple Animation Techniques
- Naturama—New Wide-Screen System

35c

FOREIGN 45c



With camera crew Miss Parade of Glamour

New, High-Speed Du Pont "Superior" 4 Captures Miss America Pageant for TV

ATLANTIC CITY, N. J. — Filming the 1956 Miss America Pageant in the resort's huge convention hall was a tough assignment for Wruck Film Corporation, New York City, since only available light was used. But cameraman Fred Fordham chose Du Pont's new high-speed "Superior" 4 Motion Picture Film and turned out top-quality pictures — with an illumination of about 40 foot-candles!

Thousands of TV viewers saw the filmed portion of the show on the ABC-TV Network, sponsored by Philco Corporation. The pictures were clear and sharp with

a full scale of middle tones (see table below for recommended exposures).

High-speed "Superior" 4 has an exposure index of 320, Daylight, 250, Tungsten, with a combination of medium-fine grain and extreme latitude. It's available in 35-mm and 16-mm sizes and is especially designed for theatrical and television work.

NEW Du Pont "Superior" 4, Type 928, Motion Picture Film is available now! Take advantage of its speed, latitude, fine grain and full panchromatic reproduction in your own motion-picture work.

FOR MORE INFORMATION, contact your nearest Du Pont Sales Office (listed below) or the Du Pont Company, Photo Products Department, Wilmington 98, Delaware. In Canada: Du Pont Company of Canada Limited, Toronto.

SALES OFFICES

Atlanta 8, Ga. — 825 Peachtree Building
Boston 10, Mass. — 140 Federal Street
Chicago 20, Ill. — 4380 York Ave., Lincolnwood
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Dallas 7, Texas — 1624 Oak Lawn Avenue
Los Angeles 38, Calif. — 7550 Santa Monica Blvd.
New York 11, N. Y. — 344 West 11th Street
Pittsburgh, Pa. — 308 East Lancaster Avenue
Reno 1, Nev. — 1000 S. Main St., Winnemucca 85, Delaware

ILLUMINATION:

For incident incandescent
light 34 foot-candles per second
— 1/32 second

LENS APERTURE

FOOT-CANDLES
REQUIRED

f:1.4	f:2.0	f:2.8	f:4.0	f:5.6	f:8.0
10	20	40	80	160	320

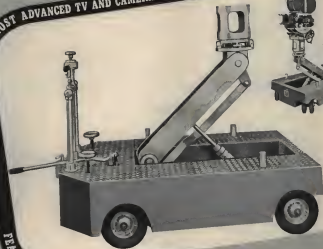


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- FOR COMPLETE DETAILS WRITE FOR BROCHURE.

* SEE LISTING PAGE 107

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AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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Telephone: HOLlywood 7-2133

VOL. 37

NOVEMBER • 1956

NO. 11

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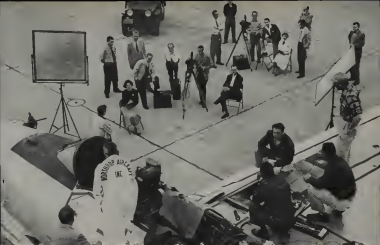
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ON THE COVE

LOCAL LOCATION—With the CinemaScope camera set up on a ship, Director of Photography Lee Garmes, A.S.C., checks the camera lens before shooting a closeup of Victor Mature (2nd from right) for Samuel Goldwyn, Inc.'s "The Sharkfighters." Location is colorful Isla de Ponce, Cuba.

AMERICAN CINEMATOGRAPHER, established 1919, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange St., Hollywood 28, Calif. Entered as second class mailer Sept. 18, 1951, at the postoffice at Los Angeles, Calif., under no. 3177. 5th CLASSIFICATION: United States and Canada, \$4.00 per year; Foreign, including Post American Union, \$1.00 per year. Single copies 35 cents; back numbers 40 cents; foreign single copies 45 cents; back numbers 45 cents. Advertising rates on application. Copyright 1956 by A. S. C. Agency, Inc.



Movie-makers a Twenty Member Motion Picture Unit set up to shoot Northrop F-100 all-weather jet airplane. Its sequence in Northrop film being Department film.

INDUSTRY'S USE OF 16MM CAMERAS BROADENS

Northrop Aircraft Demonstrates Expanded Industrial Use of Mitchell Cameras

Over 130,000 feet of film were shot last year by two 16mm Mitchell cameras operated by a full-scale motion picture unit at Northrop Aircraft. Operating daily throughout the year, these 16mm cameras provide impressive evidence of the rising role of professional motion picture equipment in American industry today.

Northrop, a leader in defense and missile manufacture, makes devoted use of their Mitchell cameras. Motion pictures range from employee activities to engineering test films—where re-shooting is impossible and where steady, accurately-framed film of superior quality is consistently delivered by Mitchell cameras.

No other single camera is today used by American industry for such a broad range of filming requirements as in the Mitchell motion. Easy operating Mitchell cameras help create sales, meet delivery schedules, and streamline and accelerate research and development. The details about Mitchell equipment that will meet your specific needs, write today on your letterhead.



Allen Band can give John Lee and Colonel James Allen being filmed by Mitchell camera for Northrop Public Relations Department.

For Quality Control Film, Mitchell camera mounted on the close back of Douglas F-100.

164 Rocket Sling of twin-jet F-100 is captured on 16mm Engineering Test film.



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CORPORATION

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This totally new color printer offers seven advanced features . . . sets new standards for technical precision and operating convenience.

The Bell & Howell Additive Color Printer is the result of intensive research and close collaboration with film laboratory specialists throughout the world. In addition to the features shown here, it incorporates the latest innovations of Bell & Howell's Continuous Film Printers which today print nearly all of the world's commercial film.

1. Controlled Color Density.—Available light is separated into the three primary colors: red, green and blue. A system of dichroics is used to produce only pure, narrow color beams. Color intensity is controlled by adjustable vanes which act as light modulators, permitting more or less of each color to pass. The three modified color beams are recombined at the aperture to produce the density and color required for correct printing.

2. Increased Illumination.—Equipped with 1,800 watt, high-intensity, pre-aligned printing lamp. An electrical interlock prevents the lamp from burning unless blower is in operation. Illumination can be reduced for black and white printing.

3. Variable Speeds.—60, 90 and 120 feet per minute.

4. Integral Fader.—Built into the lamphouse. Adjustable to produce the desired fade length. Fade

lengths of 20, 36 and 48 frames are available on 16mm printers, and 16, 32 and 48 frames on 35mm printers. Fade adjustments may be changed during the printing run to produce any of the three lengths.

5. Visual Circuit Inspection.—Five pilot lights (with housings) are mounted on each of the three color banks to permit visual inspection of the electrical circuitry for ease of maintenance. Electronic components are replaced as units, virtually eliminating lost production due to maintenance down time.

6. Automatic Operation.—Color and illumination cue controls are actuated by a perforated control tape which is pre-punched on the program perforator. The tape passes through a reader built into the console base of the printer and controls all necessary printing functions with the exception of the fade.


7. Easily Accessible Controls.—Mounted on a panel above the printer lamphouse. The film footage counter registers up to 10,000 feet of film and can be reset at the start of each film run. The automatic fader counter permits the operator to keep count of fades if they are to be varied in length during printing. Both counters are illuminated for easy viewing.

AVAILABLE ACCESSORIES

- Program perforator for producing control tape
- 1000 watt rectifier for DC
- Margin printing kit for light printing edge numbers (16mm)
- Semitized patch coating kit to eliminate notching

For further information, write Bell & Howell, Professional Equipment Division, 7148 McCormick Road, Chicago 45, Illinois.





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8mm new available,
16mm ARRIFLEX also available.

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WHAT'S NEW

... in equipment, accessories, service



Sync-motor for K-100

Camera Equipment Co., 315 West 43rd St., New York, N. Y., announces a new 110-volt AC synchronous motor for the Cine Kodak K-100 16mm camera, which drives the camera at 24 f.p.s. Motor is readily attached or detached without tools.

Wide Angle Attachment

Bell & Howell Company, Chicago, Ill., announces a new wide angle attachment lens for its recently announced Mami electric eye cine camera. Attachment converts the camera's 20mm lens to a wide angle lens with a focal length of 13.2mm, without affecting ability of the lens to set itself automatically for proper exposure. List price is \$59.95.



Recorder Checker

Stanley Hoffman Corp., 921 No. Hollywood Blvd., Hollywood 28, Cal., offers an ingenious tool for the maintenance of fixed and portable magnetic recording equipment. Known as an Oscillator Wand (Model AO11), gadget will thoroughly check a channel in a matter of seconds.

Wand is a source of either a 100-cycle tone or an 8000 cycle tone. When

it is held close to the playback head of a recorder, a similar tone will be introduced into the playback head to check operation of the amplifier. Held close to a dynamic microphone, wand will induce similar tones. List prices start at \$49.50.



Effects Printer

J. G. Sulzman, Inc., 480 Lexington Ave., New York 17, N. Y., announces a new special effects optical printer which features automatic focus from $\frac{1}{2}$ to four times contraction. The versatile printer takes both 16mm and 35mm films. It is easily changed from 16mm to 35mm or from 35mm to 16mm, with electrical disconnector on 35mm.

Maximum speed of operation is 320 frames per minute. Other features include hardened precision film tracks, shock mounts, electric clutch, automatic skip-frame, and electronic speed changer and timer. All vital controls are located at the front.

Complete technical data and prices may be had by writing the company.

CICO Distributes Moures

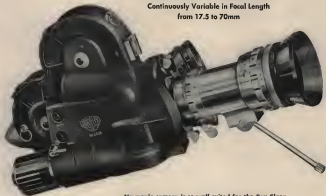
Camera Equip. Co., 315 West 43rd St., New York, N. Y., has been appointed exclusive distributor in the U. S. for all Moures cameras and recording equipment. Company also will offer complete repair and servicing facilities for Moures equipment.

190

NEW ARRI PAN-CINOR'ZOOM' LENS

for the **ARRIFLEX 16.**

Continuously Variable in Focal Length
from 17.5 to 70mm



*No movie camera is so well suited for the Pan-Cinor
Varifocal Lens as the ARRIFLEX 16.*

By simply moving a lever, you can vary the focal length of this lens from wide angle to telephoto — and back — smoothly. You observe the results while actually shooting, as you view the image through the Arri Pan-Cinor lens in the Mirror Reflex viewing system of the Arriflex. No external finder is needed.

Other lenses need not be removed, because the divergent lens barrel of the Arriflex 16 permits two other lenses to be used without optical or physical interference.

It is easy to follow moving subjects and it saves expensive "dolly" shots as the camera can remain in one position and a dolly effect obtained by varying the focal length of the lens.

SPECIFICATIONS

Varifocal Range	17.5mm to 70mm
Aperture Range	f/2.4 to f/22
Focusing Range	6 1/2 feet to infinity
Built-in Lens Hood/Filter Holder for Series VII Accessories	

\$399⁷⁵

Note: The Arri Pan-Cinor is not interchangeable with the standard model, nor can the standard model be converted for use with the Arriflex.

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Size 4 1/2" x 4 1/2" x 2 1/2"
Weight 27 lbs.
Capacity
Mounts Bolex Super 8 film
Mounted in 001
Advances
Two Steel Guide and
Lock Pins
View Spring Loading
Range

FEATURES

- Fits exactly what you see
- A rack for perfectly centered films
- Perfect for animation. Assure you all moving objects are within the lens field
- Film edge clearance not possible with camera practice mechanism
- Mounts on any regular view 7.20 mounting base
- Can load in position to avoid accident loss of film
- Camera can be load mounted regardless of position on BACO-0118
- A substantial camera base used to fit from a brick box
- May be used with all camera accessories in place with no motor 400 x magnifying 400
- Can be rented with and without shipping

NOTE: Time Assembly in receipt on BACO-0118 available 100.50

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- Elmo for the 16/11mm Mitchell camera made of aluminum. Portable, weighs only 34 lbs.
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- Shoulder Brackets for all 16/11mm cameras
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Photographic Assignments

OCTOBER • 1956

Who, where and what the industry's cameramen were shooting last month
*Specially indicate television film production.

ALIED ARTISTS

- **WILLIAM MELLON, ASC**, "Love in the Afternoon," (Shooting in Paris) with Gary Cooper, Audrey Hepburn and Maurice Chevalier. Billy Wilder, producer-director.

AMERICAN NATIONAL

- **FRANK ZUKER, ASC**, "Go for a Turn," (United States Prods. for Allied Artists) with Dale Robertson and Brian Keith. Max Glucksmann, director.

- **BOB HOFFMAN**, "Dr. Christian," (Ziv-TV) with MacDonald Carey, James Shelden, director.
- "Highway Patrol," (Ziv-TV) with Bradford Crawford, Gilbert Kay, director.

- **CURT FETTER**, "Sonoma Picture Theatre," (Ziv-TV) Eddie Davis, director, "Dr. Christian," (Ziv-TV) with MacDonald Carey, Paul Gillette, director, "Highway Patrol," (Ziv-TV) with Bradford Crawford, Eddie Davis, director.

- **NORMAN ANGLIN**, "Harbor Patrol," (Pilot) Herb Brock, director, "Underwater," (Pilot) Andrew Martia, director, "Men of Alcatraz," (Ziv-TV) William Castle, director.

- **HAROLD WILLIAMS, ASC**, "Adventures of Superman," (Superman Inc.) with George Reeves, Noel Neill, Jack Larson, various directors.

BILMOR STUDIOS (New York)

- **J. J. BENTZ, CINEKAD, ASC**, "Cross Up," (Security Pictures for UA release) with George Montgomery and Geraldine Brooks. William Berke, producer-director.

BRADLEY STUDIOS (Nashville, Tenn.)

- **ERIC HARRIS**, "Country Show," (Gateway Prods.) with Carl Swick, Marty Robison and Webb Pierce. Albert Gansswey, director.

CALIFORNIA STUDIOS

- **HAL McALPIN**, "O. Henry Playhouse," (Gross Krantz, Inc.) with Thomas Mitchell, Peter Galtrey and Rosary Galtrey, directors.
- "The Hustler's Secret Journal," (Woman, Inc.) with John Howard, Peter Galtrey, director.
- "Covers Beneath the Sea," (Narcissus Prods.) with Matt Cordery and Pat Conway. John Papay, director.

- **LEONARD ARMOUR, ASC**, "The Life of Riley," with William Bendit, Abby Berlin, director.

- **LESTER SORIN, ASC**, "Adventures of Huckleberry Finn," (Gross Krantz) with Wally Cox, Philip Ray, director, "Mature Theatre," (Gross Krantz Inc.)—Albert McCleary, director.

- **PAUL GATLEY, ASC**, "The Rosemary Clooney Show," (Meyville Corp.) with Rosemary Clooney. Dick Barclay, director.

- **FRED SCHWARTZ**, "Gambols," (Filmmaster Prods.) with James Arness and Deanna D'Amico. Andrew McLaglen, director.

CARTWAY SOUND STAGE

- **WILLIAM WHITNEY, ASC**, "The Lone Ranger," with Clayton Moore and J. Silverbach. Earl Bellamy, director.

COLUMBIA

- **GEO. ANDERSON, ASC**, "Ford Theatre," (Screen Gems), various directors.

- **THE MOORE**, "Interpol," (Technicolor Warwick Prods., shooting in Rome) with Victor Mature and Anna Ekberg. John Gilling, director.

- **BOB KRAMER**, "The Story of Esther Costello," (Valiant Film, Ltd. shooting in London) with Jane Crawford and Rosanna Stone. David Miller, director.

- **KIT CARSON**, "Father Knows Best," (Screen Gems) with Robert Young and Jane Wyatt. Peter Tewksbury, director.

- **JACK HIGGINS**, "The Bridge on the River Kwai," (Romana American Prods., shooting in Ceylon) with Jack Hawkins and Alec Guinness. David Lean, director.

- **ERNEST HALLER, ASC**, "The Conqueror and the Hunted," (Shooting in Georgia) with Sal Mineo and James Whitmore. Alfred Werker, director.

- **WILCOX COOPER**, "The Adorable Critch on," (London Films shooting in Bermuda) with Kenneth More and Diane Cilento. Lewis Gilbert, director.

- **BENJAMIN KLING, ASC**, "The Man Who Turned to Stone," with Victor Jory and Ann Dutton. Leslie Kordos, director, "Crime Day," (Screen Gems) Robert Walker, director.

- **GERALD GILES**, "Fortune is a Woman," (Lauder-Gilman Prods. shooting in London) with Jack Hawkins and Aileen Dahl. Sidney Gilliat, director.

- **BAILEY EMMETT**, "Tweed on Trial," (Markson Film, shooting in London) with John Mills, Charles Coburn and Barbara Bates. John Gillingham, director.

- **JOSEPH BUDZ, ASC**, "Garment Center," with Lee J. Cobb and Kerwin Mathews. Robert Aldrich, director.

- **FRED JORDAN**, "70th Annual Academy Awards," (Screen Gems) with Phil Carey. George Archainault, director.

- **RAY COX, ASC**, "Playhouse 90," (Screen Gems). Arthur Hiller, director.

(Continued on Page 640)

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PHOTOGRAPHIC ASSIGNMENTS

(Continued from Page 640)

• **HAI MOSE, ASC**, "George Sinden Mystery Theatre," (Screen Gems) Fletcher Markle, director

• **HENRI FRÉCHET, ASC**, "George Sinden Mystery Theatre," (Screen Gems) Fletcher Markle, director

COLUMBIA (New York)

• **SARALE J. CHAMDA**, "Nelson & Wink.com pictures," (Screen Gems) Don Henley, director

ELMCRAFT STUDIOS

• **VIRGIL MILLER, ASC**, "You Bet Your Life," (Elmcraft Productions), with George Marx, Robert Dwan, director

FOX WESTERN AVENUE STUDIOS

• **CHARLES VAN EETER, ASC**, "Broken Arrow," with John Lupton, Various, director

• **LARRY ARIENS, ASC**, "T. C. F. Hear," Various, director

GENERAL SERVICE

• **JAMES RAY TRIM, ASC**, "Burns & Allen Show," (McCulloch Productions) with Grant Allen and George Burns, Rod Amateau, director, Compton & B. F. Goodrich commercials, Bud Auerbach, director

• **HARRY WILB, ASC**, "Bob Cummings Show," (Learmonth Productions) with Bob Cummings and Rosemary DeCamp, Norman Tokar, director

• **PHILIP TANNURA, ASC**, "The People's Choice," (Mordin Productions) with Jackie Cooper and Pat Hingle, Jackie Cooper, director

• **NEAL BUCHNER**, "The Adventures of Ozzie and Harriet," (Stage 6 Productions) with Ozzie, Harriet, David, and Ricky Nelson, Ozzie Nelson, director

• **FRANK PHILLIPS**, "Navy Log," (Galla Productions), Oscar Rudolph

GLOWYN STUDIOS

• **NORMAN BECHTOLD, ASC**, "The Loretta Young Show," (Lorenco Inc.) with Loretta Young, Various, director

• **EDWARD FITZGERALD, ASC**, "Crossroads," (Federal TV Inc.), Various, director

INDEPENDENTS

• **LESTER WHEAT, ASC**, "The Knicker," (Lory Gardner-Lorenco Inc. UA release) with Tim Holt and Audrey Dalton, Arnold Lorenco, director

• **HAI McALPIN**, "Peyton," (Gram-Kramer Productions, color, widescreen) with George Montgomery and Lela Albright, George Waggoner, director, "Crossroads the Sea," (Narrative Productions) with Vera-Gray and Pat Conway, John Payne, director

• **ELIZABETH FRIEDMAN, ASC**, "Treasure Hunt," (Felding Productions UA release) with Joel McCrea and Barbara Stanwyck, Chas. M. Warren, director

• **GUY ROSE, ASC**, "Balch commercials," (McCulloch Productions, color at Detroit Pictograph Grande) Jack Hyman, director

• **JOSEPH BANC, ASC**, "The Red Back," (Associates & Albrecht Co. UA release) with Anthony Quinn and Lita Milan, Allan Minov, director

• **LYNN LINDEN, ASC**, "Bad Guy At 4000," (Pine-Thomas Productions, UA release) with John Payne and Karen Steele, Francis D. Lyon, director

(Continued on Page 632)

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16mm B&H type

OBJECTIVE FINDERS

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17mm - 3 inch

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F&B are always ready and
willing to demonstrate and in-
struct on ARRIFLEX products



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boom, chair, table or stands.
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SAMPLE SPLIT REEL METHOD SAVES
TIME . . . SPACE . . . MONEY

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and inspect film all cases, without

Score all your film on cases—

without tying up valuable reels—

and get ready to use

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HOLLYWOOD BULLETIN BOARD

News briefs about the A S C

its members, and important

industry personalities



DECOR OF DIGNITY AND ELEGANCE marks refurbishing of American Society of Cinematographers' clubhouse in Hollywood, completed this month. Above view is from Board Room looking into main lounge and toward Allied Room at rear.



CORK TILE FLOORS and modern furniture mark decorative scheme throughout clubhouse. Above is view from lounge looking toward Board Room. Played photographs of Society's Past-presidents hang on Board Room wall.



VIEW FROM Foyer, looking through lounge into Board Room. On right side of work are ASC's "Walls of Fame," on which are hung photos of members who have won Academy Awards.—Photos by Arthur C. Miller, ASC.

Sol Halprin, ASC, head of 20th Century-Fox's camera department, returns early this month from a 5-week vacation and Mediterranean cruise to start seven of the studio's directors of photography preparing to shoot seven new productions scheduled to roll within next sixty days. Halprin visited Israel, Jerusalem, and Haifa during his overseas visit and had left the troubled Egyptian area just days before the hostilities began.

Joseph Ruttenberg, ASC, who has been directing the photography of Metro-Goldwyn-Mayer's "Harvest Thunder" in CinemaScope and color in France, winds up the assignment November 15th and

heads back for Hollywood. He will visit friends in New York enroute.

Robert Sobie, ASC, of Chicago, was a Hollywood visitor last month.

Loren L. Ryder, with Paramount Studio in Hollywood since 1929, where he figured importantly in many technical developments including VistaVision, resigned as head of that studio's sound department last month in order to devote more time to his growing outside business, Magnetic Sales Corporation.

Ryder is a past-president of the SMPTE and an Associate Member of the ASC.

John Boyle, who served as president of the ASC during 1953-54, was elected its vice-president of the Society last month to fill the unexpired term of Joseph Ruttenberg, who has been in Europe the past six months on photographic assignments for Metro-Goldwyn Mayer.

Boyle's most recent photographic assignment was "The Hustlers Breed," which veteran Allan Dwan directed for National Pictures for Fox release.

Arthur Edison, who has served on the ASC's board of directors since termination of his presidency of the Society in 1955, was also re-elected an officer last month. He was elected 1st vice-president to succeed Milton Kramer, who has resigned his office due to extended photographic assignments overseas for 20th Century-Fox. Edison served as ASC president from 1954 to 1955. Kramer is presently directing the photography of "Boy On A Dolphin" in Cannes for 20th Century-Fox.

Franc Planer, ASC, and **Sam Leavitt, ASC**, returned from extended location filming assignments in Spain November first.

Planer directed the photography of "The Pride and the Passion," VistaVision-Technicolor production for Stanley Kramer, starring Cary Grant and Frank Sinatra.

Leavitt photographed "Flamenco" in VistaVision and color for Paramount.

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PHOTOGRAPHIC ASSIGNMENTS

(Continued from Page 686)

INDEPENDENTS

- **BENJAMIN BRINKER**, "A Bug Called Me Bambi," (Charmaine Prade Madrid; shooting in New York.) Londono Vayda, director.

JERRY FAIRBANKS

- **JERRY FAIRBANKS**, "A C" Spark Plug Commercial." Hal Yaris, director.

KEYWEST STUDIOS

- **WALTER SCHENDEL, ASC**, Series of religious pictures." William Christen, director.

KLING STUDIOS

- **BYRON BAKER**, "Death Valley Days," (McGowan Productions.) Stuart McGowan, director.

KITY

- **STUART THOMPSON, ASC**, "Lemon," (Robert Maxwell Productions) with Jan Clayton and George Cleveland. Lou Schneider, director.

- **MARK SPYGLAS, ASC**, "Captain David Lord," (Gold Film, Inc.), Stuart Haller, director.

- **KENNETH PRIDE, ASC**, "The Trail of Boyce Galt," (Grand Productions) with UA release, (unreleased) with Bowling, Baynes and Dorell Hickman Sidney Schick, director.

LANCASTER PRODUCTIONS

- **ALAN SHENKMAN, ASC**, "People Are Funny," (Art Lancaster Productions) with Art Lancaster, Irv Ainslie, director.

NETRO-GOLDWYN-HAYES

- **ROBERT SEXTON, ASC**, "Beverly Hills Cop," (Beverly Hills Cop) with Montgomery Clift and Elizabeth Taylor. Edward Dmytryk, director.

- **ROBERT HANCOCK, ASC**, "Something of Value," (Something of Value), with Rock Hudson and Doree Wyman. Richard Brooks, director.

- **JOSEPH RUTTENBERG, ASC**, "Harvey Thru the Lens," (CinemaScope & Color, shooting in France) with Mel Ferrer and Pier Angeli. Jeffrey Haskins, director.

- **ROBERT BROWNE**, "Ten Thousand Bold as the Lion," (CinemaScope and color-shooting in Rome) with Dean Martin and Ava Max. Albert Zugmaier. Richard Thorpe, director.

- **JOHN ADAMS**, "Daughters of the Night," (CinemaScope and Color) with Gregory Peck and Lauren Bacall. Vincente Minnelli, director.

- **PAUL FRANK**, "Lulu," (Bryan Productions) with Eleanor Parker and Richard Boone. Hugo Haas, director.

REKORD STUDIOS (New York)

- **J. BUCKE CORNWELL, ASC**, "Story of an Elderly Woman," (AT&T Commercial) (Technicolor), Henry Strass Productions. Robert Wilentz, director.

MOTION PICTURE CENTER

- **BOY BUCKING, ASC**, "I Love Lulu," (Boys Productions) with Loretta Lynn and Don Arnes. James Kuen, director. "December Bride," (Boys Productions) with Spring Byington, Dean Miller, Frances Bafferty, Jerry Thorpe, director.

(Continued on Page 682)

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TECHNICAL QUESTIONS & ANSWERS

Conducted by Walter Streng, A.S.C.



Q Questions relating to cinematography or other phases of film production are invited from readers and will be answered by letter by Walter Streng or by other qualified members of the American Society of Cinematographers. Questions and answers considered of general interest will appear in this column.—Ed.

Q I recently read about a news cameraman in Oregon who has set up a start-rack and tank outfit for quick processing of color film on a small scale, using 200-foot racks. Where can I obtain data on a similar setup? I operate a small laboratory, processing mainly professional reversal films, and am interested in tackling color processing on a limited scale.—H. G., New York, N. Y.

The color film which the Oregon newsman is processing is undoubtedly the new high-speed Ansachrome color reversal film. A processing instruction bulletin is being mailed you by the writer. A comprehensive article describing the new Ansachrome color film appeared in the August, 1956, issue of *American Cinematographer*.

There are presently many processing machines available that are suitable for processing Ansachrome. These range in price from \$80,000 on down. Manufacturers of such equipment regularly advertise in the pages of *American Cinematographer*. Possibly the lab you read about is the rack and tank setup at the Forde Motion Picture Laboratory in Seattle, Washington, which processes Ansachrome for station KOMO-TV.—John Kowalek, A.S.C.

Q I am preparing to shoot an outdoor film on Ektachrome Kodachrome, which is to be released in 35mm color.

If I have one of the major film labs make the release prints, using Eastman color negative as an intermediate, would I get better quality release prints if the original was regular daylight Kodachrome? Or Commercial Kodachrome? If there is a difference, is it appreciable?

If Generalized Kodachrome is used in the filming with no color correction filter employed to compensate for differences between emission lens, would it prove more advantageous than regular Kodachrome?—R. E. S., Buffalo, N. Y.

Answering the first of your two questions: both daylight Kodachrome Type 5263 and Kodachrome Commercial film

Type 5263 will produce satisfactory results when blown up to 35mm Eastman Color negative and release-printed to Eastman Color Print film. However, Kodachrome Commercial film would appear to be a little more desirable for the following reasons:

1) Manufacturing and processing tolerances are more closely controlled. 2) Its lower contrast makes it more desirable for any duplicating work, and 3) Kodak's new integrative film was designed specifically for Kodachrome Commercial film.

The answer to your second question is "No."—Walter Streng, A.S.C.

Q I wish to obtain a diffusion or soft-focus effect, similar to that which was common in Hollywood-made film around 1933. There is a certain liquid softness in this style of photography which I have been unable to match. I have tested most of the available diffusion and fog filters without achieving the desired results.—R. E. R., Princeton, N. J.

The diffusion effect you have in mind was probably achieved in the Hollywood films referred to by use of filters produced at that time by Harrison & Harrison, Hollywood. At one time they made diffusion filters in six grades ranging from just a suggestion of diffusion to about foglike effect.

Schulze Filters Co., P.O. Box 46634, Hollywood, Calif., can also supply you with the desired filter or make it up special to your specifications.—Walter Streng, A.S.C.

Q How does the Thrillorama system operate? I have expected to see this system described in *American Cinematographer*, as you did with Telesko, Cinemascope, and others.—J. F. L., Atlanta, Ga.

Thrillorama is a new dual-camera filming process that produces a scene on two negatives, just as Cinemascope produces it with three. In projection, two interlocked machines project the two halves of the picture and make it appear on the screen as one wide, unbroken scene. The sound track is recorded and played on a separate reel. Both closeups and long shots are photographed without distortion. The cameras used are made in France, but the photographic system was engineered and built by the Raphael G. Wolf Studio, Hollywood.—Walter Streng, A.S.C.

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Medical Movies Workshop

The first Medical Motion Picture Workshop, developed specifically for medical film producers and medical audio-visual personnel, will be presented on the sound stages of The Calvin Company, Kansas City, Mo., February 4, 5, and 6, 1957.

The three-day meeting will be devoted to discussion and screenings to assist cinematographers and producers in this specialized field, as well as to point up the broadening production of films within the field of medicine. Workshop will be open to all. A \$60 tuition fee covers all sessions and a banquet.

• • •

Nine Arri Cameras to NAA

Said to be the largest single order for Arriflex cameras ever received by any U. S. distributor was that delivered last month by Birns & Sawyer Photo Supplies, Hollywood, to North American Aviation Company, Downey, Calif. Order called for a total of nine cameras: seven Arriflex-16's and two Arriflex-35's.

• • •

Mensfield to CFI

Lewis Mensfield, for past ten years plant manager of an eastern film laboratory, has been added to the management staff of Consolidated Film Laboratories, Hollywood, according to Sid Selow, CFI vice-president.

• • •

Underwater Movies

The first motion pictures ever made of the lost Italian liner *Andrea Doria* at the bottom of the sea, made by one of the foremost teams of skin divers, will be highlighted in Pathe Pictures' soon to be released issue of its "News Magazine of the Screen." The films were made at a depth of 160 feet. The skin divers used a 35mm motion picture camera known as the F-M-8, designed completely from the inside out for underwater work, and equipped with full external controls.

CORRECTION

Bob Duggan, head of Studio Lighting Co., Chicago, has been taking a lot of kidding from friends and associates since he was quoted—unintentionally—in last month's issue ("Studio Lighting Lightly Done Considered") as stating: "With the low-light level requirements of Mux-X film, why make it a big project?" In his original statement, Duggan referred to Tri-X film. We apologize to Duggan for the embarrassing editorial error.—ED.

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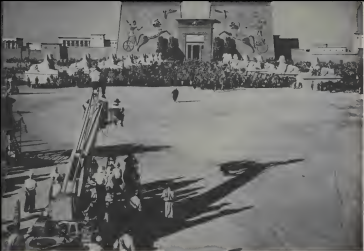
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START OF EXODUS, biggest scene in history of motion pictures, with the largest number of extras ever to appear on the screen moving through the biggest set ever built. Set, for "The Ten Commandments," recreates huge gates of the Biblical city of Pharaohs. On apex of

camera crane, directly behind the Vitaflex camera, sits cinematographer Loyal Griggs, below, to his right is Disaster Cool B. DeKille. In center foreground is Charlton Heston as Moses leading Israelites march

LOYAL BRIDGE inspired Vitaflex cinematography contributed enormously to effectiveness of the performances in climax of

Charlton Heston, left, who plays Moses, and Yul Brynner essaying the role of Ramses in "The Ten Commandments."



CINEMATOGRAPHY UNSURPASSED

Filming of Cecil B. DeMille's "The Ten Commandments" rated the biggest photographic undertaking of all time.

By ARTHUR ROWAN

IN SHEER MAGNITUDE ALONE, the photography of Cecil B. DeMille's "The Ten Commandments" surpasses all other motion picture productions. This monumental photographic achievement, in terms of pre-production preparation, execution, and the amount of color negative used, has never been equaled in the annals of Hollywood motion picture history.

Ten years were spent in planning the production, three years were required for preparation and writing of the script; and, finally, more than two years were spent in the actual filming. In its final form the picture runs three hours and forty minutes.

The medium of VistaVision was chosen in order to capture the spectacle scenes in all their scope and majesty. These eye-widening scenes include the building of the glittering, magnificent city of Pto-Ramesses, with the tolling masses of the Children of Israel laboring in tears and sweat under the lash of the taskmasters; the endless expanses of the actual Biblical wilderness of Sinai and Sin through which Moses passed; the drama of the Burning Bush for which key scenes were filmed upon Mt. Sinai itself, the Biblical plagues, such as the waters turning to blood, the hail from a cloudless sky and the death of Egypt's first-born; the Exodus of the Children of Israel from the city of the Pharaoh, involving scenes on a scale never before captured by a motion picture camera; the hosts of Pharaoh's chariots thundering after the freed slaves; the parting of the Red Sea through which the Children of Israel pass; the chariots of the Pharaoh being engulfed by massive walls of water smashing down upon them; the evil mass worship of the Golden Calf and the tremendous impact of the fiery finger of God writing the Ten Commandments upon the Tablets of Stone.

The sequence in which the Red Sea is divided and then closes again is likely to be reckoned the most spectacular special effects sequence ever conceived and produced since movies were invented.

Loyal Griggs, A.S.C., directed the photography of "The Ten Commandments." Contributing additional photography under Griggs' supervision were A.S.C. members John Warren, Wallace Kelley, and J. Peverell Marley. John Falton, A.S.C., directed the Special Photographic Effects of the picture, considered the greatest single contribution of its kind. And in the final phases of the production there were the Optical Effects Photography by Paul Lerzan, A.S.C., and the Process Photography directed by Fairfax Edson, A.S.C.

Loyal Griggs was the logical candidate for the assignment to direct the photography of DeMille's greatest production. Culminating a photographic career of some 30 years on the

(Continued on Next Page)



FOR REFINING rehearsal for a cleanup on Director Cecil B. DeMille, right, and Director of Photography Loyal Griggs look on. Ready to roll for the take is the VistaVision double-frame camera.



SACRED SITE—On a steep slope of rocks and hollowed Mount Sinai, Cecil B. DeMille directs a scene for "The Ten Commandments." Costing the action six ten VistaVision cameras, location site, selected for its authenticity, proved toughest of all locations in Egypt.



ALL FOUR VISTAVISION cameras are extended here to photograph the chariot drive against the rising glass-panes of the big spectacle sequences in "The Ten Commandments."



LOOKING THROUGH LENSES of VistaVision camera, Director DeMille checks on a new camera being prepared by cinematographer Loyal Griggs and his crew for an interior for "The Ten Commandments."



DeMILLE gives final instructions before camera starts to roll on climax of Anna Baxter. Here may be seen diffused quadlights mounted above camera to provide special, soft closeup lighting.



HIGH IN EATHERS OF SOUND stage DeMille directs action from behind the camera mounted on Chapman beam. Note dual quadlights mounted immediately above the VistaVision camera.

Paramount lot. Griggs had only recently displayed his singular camera artistry in the photography of Paramount's "Shane," for which he received an Academy Award. Subsequently, the studio selected him to direct the photography of "White Christmas," its initial VistaVision production. Following this, he filmed two other pictures in the same wide-screen process. Thus, by the time Mr. DeMille was ready to choose his cameraman for "The Ten Commandments," Griggs had become the most experienced director of VistaVision photography. By now, DeMille had elected to make "The Ten Commandments" in VistaVision and color, and Hollywood's most challenging photographic assignment went to Loyal Griggs.

The assignment came during the final pre-production

stages of the picture, for there was set the big task to be fulfilled of surveying Egyptian locales and mapping the location sites. Griggs accompanied the survey party which flew to Egypt in the fall of 1954. During the party's three-month stay, he studied Egyptian vistas the full length of the Nile, and for miles on either side, evaluating their possibilities from a pictorial standpoint as well as their accessibility. Mr. DeMille had indicated a desire to film as much of the production as possible on the actual locales of Moses' greatest achievements centuries ago, in order to give the picture authenticity and the utmost religious significance; and so it was that the historical locations on DeMille's list, as mentioned in the Book of Exodus, were carefully surveyed

(Continued on Page 161)

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FIG. 1—COMPONENT PARTS of prototype model of dielectric heater unit designed for use on professional-type film splicers. These include power supply 2, oscillator 3, thin splicer plate 4, push-button 5 and neon indicator lamp 7.



FIG. 2—COMPONENTS INSTALLED on a Bell & Howell professional splicer. Power supply is mounted on side of splicer at 2, and oscillator box just below splicer jaws at 3. The springs 10 provide positive short path grounding of upper splicer jaws when closed.

Electronic Splicing

New splicing method uses no cement, produces almost indestructible film weld in one second.

By JOHN FORBES

DIELECTRIC SPLICER (SCHEMATIC)



FIG. 3—Films F are held between splicer jaws J having electrodes E which cause weld of two films when high-frequency current is applied as.

DIMENSIONS OF DIELECTRIC SPICE



FIG. 4—Small overlap has important implications for wide-screen formats where frame separation is held to an absolute minimum.

ONE OF THE problems that remained for Du Pont engineers to solve following the company's development of its tough, thin Cinemascope film base, was a satisfactory means of splicing it. The first successful splicing of Cinemascope involved the use of pressure-sensitive tape made from Mylar polyester stock. Continued research by company engineers has resulted in a completely new technique known as dielectric splicing, which involves an electronic device that produces a film weld said to be superior to any other splicing method known.

High-frequency current flowing between two electrodes on a modified commercial splicer fuses the film together within approximately one second. Overlap needed is less than usually required for ordinary motion picture film splices. The dielectric heat weld is permanent and is as insensitive to moisture and temperature as the film itself.

The new method, which employs no cement or other adhesives, may be used to join triacetate to triacetate film base

and to splice Du Pont's Cinemascope film base to Cinemascope. However, triacetate cannot be successfully spliced to Cinemascope, and vice versa, by the dielectric method. The narrow overlap of the dielectric splice (30 mils versus 12 mils for conventional solvent splices) is expected to be of particular interest and value in negative splicing and also in the splicing of wide-screen positives where frame separation is held to an absolute minimum.

The essential of the new method are shown schematically in Fig. 3. The films F to be joined are placed between the splicer jaws J. Inserted in the end of each of these jaws is an electrode E. These electrodes, together with the films to be spliced, form part of the circuit of a high-frequency oscillator (3). Energizing the circuit which is done by momentarily passing the switch 6, Fig. 1, causes a high-frequency current to flow between the electrodes through the region B, heating the films to the point

(Continued on Page 689)



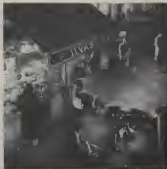
INGRID BERGMAN (left background) privately events house of Jack Hillyard's Cinemascope camera, while director Anatol Litvak (right) discusses action for the scene with an assistant.



PATTERN OF THE lighting established by Jack Hillyard for one of the large interior sets erected on sound stage at M.G.M.'s Borehamwood studio in London for 20th Century-Fox's "Anastasia."



SHOOTING NIGHT outcrops an exact set erected on back lot of Borehamwood studio. Church in background is exact replica of Russian Orthodox church in Paris, tested studio's lighting capacity to track.



DIRECTOR ANATOL LITVAK (gray suited and hatless, center) discusses new camera setup with director of photography Jack Hillyard and assistant on exterior side street set at Borehamwood.

Filming "Anastasia"

By FREDERICK FOSTER

BRITISH CINEMATOGRAPHER Jack Hillyard traveled all the way to Hollywood a few months ago to gain firsthand knowledge of CinemaScope lenses

and CinemaScope photography. Twentieth Century Fox had engaged him to direct the photography of "Anastasia," which was to be shot in England, France

and Denmark, and which was to reintroduce screen star Ingrid Bergman to American theatre audiences after an absence of nearly a decade. It was Hillyard's first CinemaScope assignment.

Hillyard's smart camera artistry came into prominence in this country following the national release of "Summer-time," starring Katherine Hepburn, and 20th Fox left Hillyard was the man to entrust with the filming of its pro-

duction of "Anastasia," which was to be produced entirely in Europe at a cost of \$4,500,000. Beaton Fox's contract cinematographers were committed for pictures far into the future. It was necessary to engage someone else—preferable a cinematographer having experience in Europe.

At 20th Century Fox's Beverly Hills studio, Hildyard observed Academy-Award winners Leon Shamroy, A.S.C., Milton Krassner, A.S.C., and others light and photograph sets for CinemaScope color productions. Following several weeks of such "on-the-set" study and a briefing to CinemaScope optics by 20th's camera department head, Sol Halperin, A.S.C., Hildyard returned to London, and then flew to Copenhagen, Denmark, where initial shooting on "Anastasia" began. Directing the Buddy Adler production was Anatole Litvak, whose "Seaside Pal" is still regarded as one of 20th-Fox's most sensitive and successful productions.

Based on the hit play by Marcelle Maurette, translated to English by Guy Bolton, and adapted for the screen by Arthur Laurents, the film tells the story of a starved, destitute girl, played by Ingrid Bergman, who is rescued from suicide in the Seine by a Russian ex-General (Yul Brynner) and forced to pass herself off as the Princess Anastasia, only living daughter of the last Czar of Russia, Nicholas II. The ex-General's plan is to, in this way, gain control of the \$10,000,000 legacy left by the Czar. Later he falls in love with the girl and loses his great desire for the fortune.

Shooting on the film began May 21, 1956, in Copenhagen where the palaces, squares and restaurants of that lovely city were used as natural locales and photographed by Hildyard and his camera crew. Location shooting then shifted to Paris, where for more than a week the company worked at night and in a light rain filming scenes with Miss Bergman and Mr. Brynner in the narrow, tortuous Parisian streets and on the banks of the Seine near the Pont d'Alcantara III. Then on June 11, shooting switched to London, where the company completed the picture at M-G-M's Borehamwood Studio.

One of the most lovely and moving scenes in the film is one of the early sequences in which Brynner first meets Miss Bergman in a churchyard, while hundreds of worshippers—all carrying lighted candles—make way for a Russian Easter procession of white and gold robed priests and their assistants carrying icons, crosses, and the Crucifix, and followed by a choir of 30 Russian voices singing an ancient Easter hymn in Slavonic tongue, as sung in the services in the Russian Orthodox Church.

(Continued on Page 685)



SHOOTING LOW-ANGLE shot of horses and Indians in dramatic chase of whites for C. V. Whitney Pictures' "The Searchers." Cinematographer Milton Hoch, A.S.C., and Director John Ford conceived method of making shot with camera in jet and sliding rails in channel reaching horse directly over the camera.



LAST MOMENT check is given the Technicolor VistaVision camera before signaling the Indian herdsman for the take. Later, camera was partially concealed with a blanket after horses slid away from the "change object" during rehearsal.

Thrill Shot...

ACTION FILMS—the kind C. V. Whitney Pictures, Inc., produces for Warner Brothers' release—inevitably call upon the director of photography for some rare and dramatic camera treatment. Such a traditional occasion arose during the course of filming "The Searchers," directed by John Ford and starring John Wayne, and photographed by Milton Hoch, A.S.C., three-time Academy Award winner for cinematographic achievement.

Photographed in VistaVision and color almost entirely in the famous Painted Desert area of Arizona, the story comes to a climax in a dramatic Indian chase of the whites. Here director Ford wanted

(Continued on Page 685)

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Illustrated, TEL-Animastand with TEL-Animat sliding cut board, rotated at 45°



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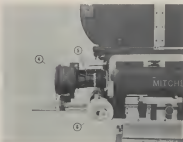
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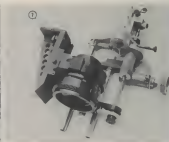
MITCHELL BNC camera equipped with anamorphic lens and synchronous focusing attachment used in photographing *Naturama* wide-screen productions. A single knob controls focus of both lenses.



MITCHELL BNC camera similarly equipped. Gear (2) actuates mesh and glass gear (3) which engages ring gear of anamorphic lens, focusing it simultaneously with the camera lens.



SIDE VIEW showing Mitchell BNC setup. Anamorphic lens is shown at (4) and the camera lens at (3). Synchronous focusing of both lenses is achieved by one camera-mounted operating knob (5).



ANAMORPHIC lens holder and gear train through which focusing rings on both the camera lens and anamorphic lens are actuated simultaneously. Gally's Removable bracket is shown at (7).

Naturama — Republic's New Wide-Screen Process

SINCE THE ADVENT of widescreen motion pictures in 1952, *American CinemaScope* has endeavored to keep its readers informed of the details and method of operation of all wide-screen processes, following their introduction.

Early this year, Republic Pictures Corp. put into practical use its new wide screen process. Said to eliminate practically all of the technical faults of wide-screen motion pictures from camera aspects to projection, the new system is trade-named *Naturama*.—Editor.

NATURAMA IS AN anamorphic wide-screen system with an aspect ratio of 2.35 to 1. An anamorphic attachment lens is employed in the photography, and is mechanically coupled to the camera lens to achieve simultaneous focus of both lenses.

Under the supervision of Republic Studio's President, Herbert J. Yates, and

(Continued on Page 660)



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GIANT TELESCOPIC TRACKER developed at Ft. Monmouth, N. J., for Army Signal Corps can track a missile 300 miles away. Data is recorded by tracker's 70mm and 35mm cameras.

MAIN CAMERA, built by Fairchild Camera & Instrument Corp., uses 70mm film to record tracker's field of view, and is keyed with 35mm data recording camera by timing signal.

A GIANT TELESCOPIC tracker capable of tracing a missile 300 miles away and which clearly shows fast moving aerial objects in natural color on the instrument's scope, has been developed at the Army Signal Corps Engineering Laboratories at Fort Monmouth, N. J.

The new one-and-a-half ton optical colossus, which has a 400-pound lens system developed by Fairchild Camera and Instrument Corporation, takes black-and-white photographs of rockets, jets and other flying objects automatically. The new equipment, currently undergoing tests at White Sands, New Mexico has already made an impressive record.

Engineers have given the tracker a four-point record of achievement; good

telephotographic lens and camera system, precise coordination of target and time records, reliable target acquisition and fast and accurate tracking.

Heart of the main optical system is

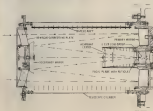
a 40" focal length Cooke type of reflective optics. Important advantages of this type are high transmission of light, no chromatic aberration, reduced overall size which in itself is an important factor in tracking, and the use of large apertures with a relatively small opening. The optics, which were designed by the noted lens expert Dr. James G. Baker coordinating with Fairchild engineers, include a turret of projection lenses of 4X, 2X, 1X and $\frac{1}{2}$ X magnification providing effective focal lengths of 160", 80", 40" and 20" respectively. The entire field of view of this optical system varies from 12½ to 5 degrees depending on the projection lens in use.

The camera, built and designed by Fairchild, has a capacity for recording up to 20 pictures per second, although most of the work has been done at

(Continued on Page 603)

Telescopic Tracker

The main camera uses 70mm film, the data camera 35mm film. Both are pulse-synchronized at approximately four frames per second.



TRACKER's primary optical system designed by Dr. James G. Baker and built by Fairchild, also mirrors as well as lenses in lens and photographic sections.



RUGGEDNESS of war surplus 16mm Gun Camera was proven recently when it was mounted beneath chassis of an automobile to record at close range the car's wheel action. Footage provided

key sequence in sales promotion film produced by Video Films, Detroit, for Monroe Auto Equipment Company. Camera was operated remotely by batteries.

Gun Camera In Unique Role

Mounted under auto chassis it records effect of faulty shock absorbers on tires and car performance.

THE GUN CAMERA, developed during World War II to record aerial combat activities, has found a multitude of post-war uses. One of the countless items made available by the government through "surplus" stores, the camera, which uses 16mm film in magazines, has served both professional and amateur film makers alike. Having a rugged, compact electric motor instead of the spring motor common with most cine cameras, the Gun Camera has been adapted to many picture-making assignments requiring remote control.

One of the most interesting to come to attention is the recent application of the camera by Video Films, Detroit, Michigan, in recording action of wheels on automobiles and trucks having faulty shock absorbers.

As shown in the photo above, the Gun Camera was mounted on a special ad-

justable iron bracket bolted to the underside of the vehicle and the lens focused on one of the vehicle's tires. In this way a remarkable film report was obtained showing how wheels behave on various road surfaces. The main purpose of the studies was to prove that good shock absorbers keep wheels down for better car control and braking ability. A typical wheel action is shown in the film clip reproduced at the right.

Because of car speed and vibrations involved in the test runs, an extremely rugged mounting bracket had to be designed, despite the light weight of the camera itself.

Power for the camera's motor was supplied by 24-volt batteries and stopping and starting was controlled remotely from the driver's seat. Because the camera will operate at 32 and 64

(Continued on Page 698)



FILM CLIP from 16mm color shot made by Gun Camera, showing erratic action of automobile wheel on rough pavement as result of faulty shock absorbers.

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FIG. 1—Overlay rolls are taped to edges of board to insure exact registration, and to permit them to be folded in and out (off and on the background drawing) as desired. Background used here is Rulox H-16 camera and Rulox title stand.



FIG. 2—Drawing the animated line. Route taken from New York to Bermuda was shown by animating line between two points on an overlay roll placed over map background in color.

Simple Animation Techniques

The amateur can enhance his movies with animated sequences easily filmed by following the simple techniques employed by many commercial film producers.

By PETER GIBBONS

(Reprinted by permission from *Rulox Reporter*)

WHEN THE WORD ANIMATION is mentioned, almost the first thing that comes to mind is the animated cartoon. This form of movies is a medium which uses a series of drawings, sometimes thousands of them, each one painted on a separate sheet of material. It is a very specialized pro-

cess and requires many and varying talents. To make even the simplest animated film would take one person a year or two, if not longer.

However, there is a simpler type of animation which anyone can use in his film to add variety, clarity and interest. This is the kind of animation used in

commercial films to illustrate principles and processes which cannot easily be pictured or explained in straight "live" photography. Such animation can be used effectively not only to show how something is done or how one thing compares with another but also to set locations—on a map for instance

—for a story, an event or an incident, and to show progress from place to place or from point to point.

Before discussing ways in which you can make use of this simple but effective type of animation, let us look at some of the terms most frequently used in the process. These definitions are for animation and may differ slightly from definitions used for straight "live" movie making:

Background. The base upon or against which other things will move or animate.

Overlay: A picture drawn on a separate piece of transparent material, which goes over the background; it may be a stationary picture, such as a house; or it may contain animation, such as smoke rising from a chimney.

Cell: A sheet of cellulose acetate used in animation (because of its transparency) on which is painted or drawn art work to be photographed.

Fade-in: To bring a picture gradually onto the film from total darkness to full brilliance. This should be done only at the beginning of a scene.

Dissolve In: To bring one item, such as an arrow or a line, gradually onto the film while the background remains the same.

Highlight: A white line around an item, for example the name of a city in the film for the purpose of emphasizing it.

Pop In: To bring something onto the film suddenly, so that it appears to "pop in" from nowhere. Pop out is just the opposite.

Scratch Off: A technique used in animation to make lines travel from one point to another, such as a route travelled from one city to another.

In animation, the picture is made by exposing one frame (picture) at a time. After the first frame is exposed, the subject is moved very slightly; then the second frame is exposed and the subject is moved a little more. This is done for hundreds and hundreds of frames so that when the film is projected at normal speed the 'actor' or object moves across the screen in a smooth, realistic fashion—that is, if enough time and



FIG. 3—Typical exposure sheet completed for animation sequence suggested in author's text. It consists of symbols and vertical lines representing the action, where it takes place, and the amount of time (in frames of film) that it lasts.

effort and patience has been exercised to do a good job. Unsteadiness and jumps in action can be very disconcerting, and will detract from the effect of the picture rather than add to it.

Cartoons are made by drawing the

actor on a different cell for each slight advance in position, and changing these cells against the background for each exposure. It is necessary to re-draw for each exposure because of changes in position and the movement of arms and legs. Simpler animated pictures can be made by moving the object itself against the background. Our subjects here will be lines, arrows, letters, and numbers and all we will have to do will be to change their positions against a fixed background. Our kind of animation will differ in another way, too, in that most of it will be shot backwards. Don't protest right away that your camera will not run backwards. You can use the old trick of turning the camera upside down when you shoot, and reversing the film when splicing it into the finished picture. Remember to use only double perforated film in your Bolex 16-16 so that it will have proper sprockets when reversed to pass through your projector.

Why shoot backwards? The answer is very simple... it is easier to get the effects you want that way. Almost invariably in this method of movie making, objects come gradually into the picture; lines showing routes from one city to the other, arrows pointing out items to be emphasized, or numbers indicating the sequence in which things are to be done. If the work were shot forward it would be a difficult and tedious job to put in numbers or arrows in perfect alignment while the background was under the camera. If a route was to be traced from one city to another

(Continued on Page 682)

Amateur Film Festival

"AMATEUR FILM FESTIVAL," the title of a proposed television program produced by Laurence Schwab, who is currently directing NBC's "Mature Theatre" in Hollywood, will offer the television audience an opportunity to recognize the talents of the amateur film maker in a new and unexplored manner.

Too often it is assumed that home movies record only travels, birthdays, weddings, and children of the family, and therefore are limited to a small personal audience of family and friends. The Amateur Film Festival intends to disprove this view by showing to the public the creative work to be found in the amateur film field. Technically, the amateur has much to learn from the professional regarding cameras, lights, makeup and the myriad of specialized details, which make up a modern film production. However in the conception department the amateur

could easily teach the professional a few tricks inasmuch as the amateur is not restricted by commercial film requirements and is left free to ask whichever channel suits his mood. This flexibility, plus the lack of technical equipment and "know how," has led to the production by amateurs of numerous films of avant-garde quality. Mr. Schwab feels that television will show off these films to best advantage and to the greatest audience for the amateur field.

The format of the program will be the presentation of amateur films to a selected panel for discussion and review. This moderated panel will consist of qualified professional members, such as film directors, cameramen, editors, film stars, and others from the film industry whose constructive criticism will aid the amateur whose film is on view, as well as those who are watching and are, or intend to be,

(Continued on Page 682)



FIG. 1—Simple homemade movie box is mounted on bracket locked between camera base and tripod head. 1/4-inch opening movie is shown in glass in holder.



FIG. 2—Arrow points to piece of masking tape used to block off 1/4 of aperture behind lens—ideal method where the camera provides removal of lens.

Action Montages For The Amateur

By JAMES R. OSWALD

THE ART OF MAKING montages is certainly not a new one insofar as the ardent still photographer is concerned, but when it comes to movie making, other than professional, it constitutes a field little explored, even by the more advanced amateur. Perhaps it is because these intriguing effects are usually thought of as requiring rather involved and expensive laboratory procedure that many amateurs shy away from an attempt at montage-making.

It is surprising what can be accom-

plished with limited equipment in the realm of movie making, provided that the necessary patience and perseverance exists to see an exacting job through to a successful conclusion. Since making action montages is somewhat of a challenge to the skill of the cameraman, it is obviously an undertaking for the experienced filmer, or at least one with serious photographic inclinations, if the outcome is to be satisfactory.

Just what is a montage and what is its purpose? A good way to describe a

montage is to define it as a sort of composite picture in which two or more (usually several), separate and distinct images appear together in one overall scene. This means, of course, that each of the individual components uniting to comprise the completed montage is nature in itself, and as such can possess a pictorial entity all its own, consequently filling the screen with an array of multiple action in the same area normally occupied by the conventional picture. Thus, in a unique way the enterprising cine amateur may depict a series of events supposedly occurring simultaneously: present a long shot and a close-up of a subject in a single view, or portray a person's diverse moods or expressions. Montages also afford an effective means of contrasting the city with the country, or contrasting various modes of living; to summarize vacation highlights at a glance; or, in short, for any situation where it is found advantageous to picture a group of scenes as a unit. Other possibilities will suggest themselves according to the filmer's ingenuity.

There are two fundamental methods the amateur movie maker can employ in making action montages. The principle behind either is identical in that a way must be devised to permit only a pre-selected portion of each film frame to be exposed at a time, while the balance is kept preserved for segments of the montage to be photographed later. The simpler, though perhaps more limited, procedure for attaining this end is merely to mask a part of the camera aperture with tape at a point directly in back of the lens, as shown in Fig. 2. This method has among its shortcomings the fact that the reader's camera may not provide for easy access to the aperture. To attempt similar masking of the lens itself is impractical and may lead to complications, besides.

The alternate, and possibly more versatile, method is to use a series of

(Continued on Page 574)



FIG. 3—Examples of three montage patterns that may be accomplished with the average cine camera, using methods set forth



by author Oswald in the accompanying article. In all cases, each exposure should be uniform with the rest.



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ACTION MONTAGES

(Continued from Page 650)

entile, method than can be utilized by the amateur in making action montages incorporates an auxiliary piece of equipment known as a matte box. This is essentially a box-like contrivance mounted in front of the camera, as shown in Fig. 1. With the exception of a circular hole in one end, through which the lens protrudes, and an open end opposite, the preparation of a film frame, the device is closed on the sides and its inner surfaces finished a dull black, to minimize the possibility of stray reflections impairing the picture. Joined with the camera, its center axis in perfect alignment with that of the lens, the matte box acts to hold, at a fixed distance from the film plane, different shaped masks, or masks, which, of course, serve to withhold registration of one portion of the montage scene while another is being photographed. The box proper, which may be built of plywood or metal should be rigidly supported on the tripod with the camera by means of a bracket, similar to the one shown in the photo. The masks, fashioned from stiff cardboard or thin metal and cut to the shape and size required, are readily interchangeable and positioned by sliding into grooves or slots paralleling the top and bottom of the front of the matte box. Keying symbols will aid in precise placement of the masks.

Sometimes a matte box is of a tapering design, as that illustrated, an optional feature in its construction. Irrespective of style, exact dimensions are not of special significance, and are largely an item for individual consideration. What is always of great importance, however, is that the opposing walls of the device be sufficiently apart from each other to avoid kipping off the scene, no matter what the focal length of the lens employed. Stated solely for purposes of guidance, and not for patterning after as an all-around version, the unit shown measures approximately 5 1/2" long, the end holding the masks 3" square, which tapers to the camera end, 1 1/2" square. Its circular inner opening ample to envelope any lens with which the accessory is used. The bony bars of this particular model enable it to be used with certain still cameras, also.

Up to this point no reference has been made to the manner of back-winding the film, a necessary operation in making the series of exposures that form the composite image in an action montage. Since by far the vast majority of home movie cameras have no provision for back-winding, substitute means are indicated.

Having photographed the first seg-

ment of the montage, giving careful note to the readings on the regular footage gauge at the start and conclusion of the scene, one substitute way of winding back the exposed film is to resort to the darkroom procedure. Here, the film is removed from the camera, wound back to the beginning of the sequence manually, and rethreaded, in preparation for shooting the next stage of the montage. If the camera is of the magazine-loading type, the magazine must be disassembled in order to back-wind the film, an operation the writer strongly urges mastering beforehand with a discard Roll or magazine, the respective process is then repeated as each part of the montage is filmed, until completed.

Not an absolute requirement, in certain instances it may be advisable to adopt a coding system, to facilitate starting off subsequently-photographed montage portions on the same film frame as the original. With such a system, prior to making the initial exposure for the multiple image, a small identifying notch is cut or punched in the edge of the film in the darkroom. The notch affords a finger tip method of matching the complementary scenes to their allocated film section. More exact than relying on the conventional footage calculator for this purpose, the practice is especially beneficial in making a montage the worth of which depends on split-second coordination of the allied bits of action.

Nothing the film, if properly executed, does not bear the picture or bumper its projection. To cut the finish of a montage sequence in this fashion, however, is neither practical nor important inasmuch as each coding is not manifested outwardly, and because any excess of film frames to those counted to all parts of the montage can be eliminated through editing, the usual means for measuring scene length may be resorted to, as when the notching system is not employed. There is a matter, though, of acquiring the more equalized termination of the montage components than by the customary footage computer way, and that is with the assistance of an ordinary image containing a second hand, or better still, with a stop watch.

The user of a roll-film loading camera, or even magazine type, has at his disposal another, perhaps preferred, method of repositioning the film for photographing each segment of the montage. No darkroom technique is required as in the previous method. The system may be considered by some too indirect a way of attaining the necessary end to be of interest. Nevertheless, to enable the reader to make his own decision in the matter, the procedure is herewith explained. After a section of

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the montage has been exposed, the lens is capped, and the entire remainder of the film run through the camera. This accomplished, the reels are unreeled, or the magazine turned over, as the case may be, and the film completely rewound. Then, with the reel switch (or magazine turnover) process repeated, the film is allowed to proceed to the start of the montage sequence, in readiness for shooting the next portion upon uncovering the lens. As before, the operation is duplicated as each segment is exposed, until the montage is fully composed. Since there is no need for recourse to the darkroom in these steps, the match system of coding is not applicable here.

In any circumstances where exposure is restricted to a section of the film frame at a time, it naturally follows that, in sighting through the viewfinder, composition must be made accordingly, because a lens always inverts the image on the film, when a montage is being photographed by the direct masking of the camera aperture, the blocking off of this opening must not only conform with the viewfinder composition, but also with the transposed picture. Matte box masking intercepts the image prior to reaching the lens, hence the transpositional aspect of this optical law is of no concern in such a situation. Viewfinder composition still applies, however.

Regardless of the method pursued in making action montages, the technique offers the enterprising cameraman an opportunity for original expression in a novel manner. But like other intriguing motion picture effects, montages should be used sparingly, and with discretion. If their fascination is to be maintained, and their existence justified. And though somewhat of a challenge even to the fiber of considerable experience, the amateur, too, with limited equipment, may well broaden his movie making horizons with these clever split scene realizations decidedly unique in the field

Initial shooting on the picture began on the slopes of Mt. Sinai where the production group that included DeMille, Charlton Heston, who portrays Moses, Griggs, and a picked crew of technicians followed the very path taken by Moses, as described in Exodus, and made scenes in the actual places on Mt. Sinai where Moses saw the Burning Bush and heard the Voice of God.

This first location site was also the toughest of the entire picture. It was tough to reach and tough to work in—about half way up the steep 3,000-ft. mountain. When the camera, carrying the cameras and associated equipment could go no farther, the equipment was unloaded, broken down into the smallest possible units, and carried the rest of the way by laborers and members of the camera crew. The entire company lived for ten days at St. Catherine's Monastery, 5th Century shrine and oldest Christian edifice in continuous use, on a slope of the Holy Mount.

Here, at this near-inaccessible location, Griggs worked without benefit of his panoramic and booster lights, and relied on sunlight reflectors to provide fill and booster light for the scenes enacted high on that mountain slope.

Space does not permit recounting here the production crew's experiences at all the location sites in Egypt. The major activity, of course, centered around the vast Per-Rameses set situated 15 miles beyond Cairo. By now the last of the four brand-new Mitchell-made VistaVision cameras had arrived in Cairo from Hollywood, where they had been carefully checked and tested by Jack Bishop and the Paramount camera department staff.

Next to the cameras, the scores of booster lights and the power generator, perhaps the most important piece of equipment made available to Griggs was a super-size \$50,000 Chapman camera crane, built by Chapman Studio Equip. Co., North Hollywood, especially for this production.

Some idea of the size and scope of operation of this crane may be seen from the following statistics: Length, 10 feet; width, 7½ feet; minimum height, 9 feet; wheelbase, 13 feet; tread 6 feet. Maximum height obtainable, with crane fully elevated 28 feet—less to ground. The boom rotates a full 360°.

Both a gasoline engine and an electric motor drive are included, and are designed to operate either singly or together. The gas motor is intended for use in propelling the crane on land or on highways, while the electric drive serves for moving the crane on the sound stage or where the gas motor cannot be used because of its exhaust. It was from this crane that most of the spectacular shots of the Exodus, the

CINEMATOGRAPHY UNSURPASSED

(Continued from Page 568)

and reported upon.

During the months that followed, construction crews were put to work in Egypt erecting what is believed to be the largest single motion picture set ever constructed anywhere—the gates and city walls of Per-Rameses, through which the Exodus passes—about fifteen miles from Cairo. And it was here that Griggs and his photographic crew of sinews were soon to set up the VistaVision cameras and photograph some of the greatest mass action ever staged for a motion picture.

The inseparable cast of "The Ten Commandments" comprises: Isidore, Charles Brown who portrays Moses, Yul Brynner, as Pharaoh; Innaur, Elissa Suler, Edward G. Robinson, Yvonne De Carlo, Dolores del Rio, John Derek, Sir Cedric Hardwicke, Nina Fark, Martha Scott, Judith Anderson, Vincent Price, John Cauley, Henry Wilcoxon, Olive Deering, Douglas Dumbrille, Donald Crisp, Jack Pape, Ben Kelly and many others, including well-known DeMille veterans.

pursued by the chariots, and some phases of the parting of the Red Sea action were filmed.

Only the VistaVision cameras with their double-frame aspect ratios could properly capture the full scope and majesty of the largest set, the gates and city walls of Per-Rameses, which stretched across the desert a full quarter mile, with two huge pylons, each 107 feet in height, flanking the gate proper. For the Exodus sequence, at least 12,000 people—actors and extras—and 15,000 animals—cows, sheep, camels, goats, poultry, etc.—took part.

In filming the Exodus sequence, all four VistaVision cameras were employed. Griggs' camera, mounted on the huge Chapin crane, was the key camera. Director DeMille mounted one of the crane's three seats and directed the vast action by public address system and by shortwave radio. Griggs was equipped with an inventory of 6 lenses, all of which had been re-calibrated and carefully matched to insure uniform results. They were: 28mm, 35mm, 45mm, 50mm, 75mm, and 4-inch telephoto. The 28, 35, and 50 millimeter lenses were Leica lenses, specially adapted for the VistaVision cameras, and were his "pets," as he says. "The result achieved in clarity, depth and resolution with these lenses," he added, "is simply unparalleled." Practically every lens mentioned above was used by Griggs at one time or another in filming scenes of the Exodus. The other three VistaVision cameras, stationed at strategic points along the line of the Exodus march, used virtually the same lenses throughout as their scope of coverage had been pretty much defined in advance.

Some idea of the great vistas covered with the VistaVision cameras, Griggs points out, is the fact that the Exodus action ultimately stretched out over three miles in extent and was entirely covered, both in width and depth, by the VV camera lenses.

In shooting the Exodus scenes, said Griggs, the light was never a controlling factor. It was the people, the animals, and all the things incidental to the action; the cameras were invariably waiting on them. Usually the company assembled early in the morning and started shooting, and kept on shooting—rolling the cameras just as fast as each

scene could be made ready. Where retakes were necessary, the crowds of people, animals, etc., had to be moved back to their respective starting places, and everything checked to make sure that each start was uniform in composition and checked out insofar as continuity was concerned.

"The Ten Commandments" mobilized the greatest number of extra people ever used in a motion picture. For scenes of the Exodus, extras were not hired by the individual but by whole tribes, along with their animals, their goods and chattels. Additionally, buses called each morning at the Cairo synagogues to transport workers to the set. DeMille found it inspiring that in these scenes Jews, Christians and Moslems worked side by side in complete harmony to help bring to the screen the story of Moses, revered in all three of their respective faiths.

In Egypt, Loyal Griggs and John Fulton, director of Special Photo Photographic Effects, worked closely together whenever there were scenes to film that later would receive Fulton's additional special effects treatment—such as the later Exodus scenes, where the skies become overcast with billowing, dark, ominous clouds (superimposed later by Fulton and his staff). In these scenes, it was necessary to change the aspect of the daylight so that it would appear as though the sky was actually overcast—although Griggs shot these scenes in full sunlight. Here, he used a special graduated neutral density filter, which altered the aspect of the lower part of the scene but left the sky area (which would have the clouds superimposed later) entirely normal.

In still other scenes in which Mr. Sinai was shown erupting in a halo of red fire—an effect introduced into the scenes subsequently by Fulton—Griggs gave the scenes the proper touch of red by projecting red light into them, which would make it appear in the completely processed scene as though the scene was aglow from the red flames emerging from Mr. Sinai. These scenes, of course, were also filmed in bright sunlight.

The film product of the VistaVision cameras was shipped to Hollywood daily from Cairo, was processed by the Technicolor laboratory in Hollywood, and prints returned by air. Thus, "delays" or "rushes" were available on an average of four times per week. They were screened for Mr. DeMille, Loyal Griggs, and others of the production company in a theatre in Cairo, or at location headquarters, which were situated in one of the Egyptian film studios in Cairo.

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was used to transport and store all negative during the overseas location shooting of "Commandments." The truck was specially built for the purpose and was equipped with precise controls that maintained even temperature in the film storage vaults, regardless of the prevailing actual temperatures. At the Mt. Sinai location, the most distant of all from Cairo, the truck would leave for Cairo at the close of each day's shooting; it was a ten-hour drive—and required from 12 to 15 hours to complete the return, uphill journey.

In making air-shipment of the negative to the U. S., the film was carefully packed in dry ice and put on a TWA plane, which left Cairo early each morning and arrived in New York the following morning; the film was transhipped from there to Hollywood, where it arrived the same night.

The intense heat that prevailed daily in Egypt along with the ever-present dust posed a maintenance problem for the camera crew—a contingency that was anticipated well in advance. The studio sent along an expert camera maintenance crew which inspected, cleaned and carefully adjusted each of the four VistaVision cameras at the end of each day's use. When dust storms prevailed or whenever some action created an excessive dust problem, large cellophane envelopes with a narrow slit cut for the lens, were slipped over the cameras and tied at the bottom as a means of keeping dust from reaching the delicate film movement and the polished steel film gates.

Not all of the production, of course, was photographed in Egypt. Following the nearly three months of shooting in Egypt and the Sinai Peninsula, there followed 117 days of shooting in Hollywood—said to be the longest shooting period in industry history. During this time, the entire Paramount studio was leased to capacity to provide space for sets for "The Ten Commandments." To film one phase of the sequence depicting the parting of the Red Sea, it required a temporary physical union of two giant movie lots in Hollywood in order to provide the necessary area needed by DeMille in staging the action. Thus, fences between the RKO and Paramount lots were torn down, and construction started which required the use of nearly 30,000 cubic feet of concrete.

Indoors on the sound stages, Guggis found a new tool awaiting him which had been undergoing development during the period he was shooting in Egypt. This was National Carbon Company's yellow-flame carbon which has since proven such a boon to photography with Eastman Color negative. These

new carbon arc enabled Griggs to obtain a new richness in the rendition of the highly colorful and intricately designed sets, props and costumes which are among the outstanding features of "The Ten Commandments."

After Griggs and his crew had shot the last scene on the sound stage, and the crews, cast, and all pertinent technicians "dismissed," there was still a major part of the picture yet to be completed. That was the concluding phase of the Special Photographic Effects work, some of which has already been referred to above.

This phase of the production was a major undertaking in itself—said to be the largest ever involved in a Hollywood motion picture—and worthy of a story all its own. (Which we plan for an early issue.—E.D.).

TELESCOPIC TRACKER

(Continued from Page 671)

4 fps. To provide accurate film record of target information, almost perfect frame to frame film registration has been achieved, even at the 20 fps speed.

Angular data obtained from the precision scales is also recorded photographically. The main camera photographs the target and records the reading of a clock on the same frame. An auxiliary camera photographs a data display unit which indicates the orientation of the pedestal in elevation and in azimuth. It also mounts a second clock which is synchronized with the first. Additional fine and coarse servo-driven position indicators may be connected through data transmission cables.

The main camera uses 70mm film, the data 35mm film. Both are pulse-synchronized at approximately four frames a second. Both cameras are put in operation a few seconds before test time, so they are running at constant speed at zero time. The 70mm film shows photographs of the main camera's field of view only, while the 35mm film will remain blank.

The first firing range pulse, marking on target time, will activate a holding relay which supplies power through a micro switch synchronized with shutter opening, thus operating flashing lamps illuminating the data dials and both clocks, and also a neon lamp arranged to produce a reference mark on the 70mm film. Another reference mark on this film is produced by a neon lamp arranged to operate directly from and in synchronism with the first range pulse.

Both of these marks are applied to the film ahead of the loop where the film motion is steady and continuous. The spacing between the two marks is thus an exact measure of the elapsed

time between the missile lift and the usual clock photograph.

This high degree of accuracy means that the film will reveal information not only as to type of object, but also that will determine its velocity, its rate of acceleration, its elevation and its azimuth. That, with radar range information, will give a precise location of the missile at any point in time.

Fast and accurate tracking is obtained manually by "crystal ball" control of a servo system. This device, used for several years in anti-aircraft controls eliminates the free slowing method and the method of hand turned elevation and azimuth wheels. This latter method often required a two-man team. In accuracy, the operator or tracker moves the "crystal ball" so that the image of the target, seen through the tracking telescope, remains centered on crosshairs. A seat for the operator is mounted on the pedestal and rides with it.

In addition to manual input orientation by the "crystal ball" method, a synchro-system can also be employed to orient the tracker on the basis of data received through a data transmission system or from radar. For example, an object beyond the telescope's range, could be picked up on radar which in turn would position the tracking telescope on the object even before the object was visible to the operator.

Self-contained in the platform of the tracker are the motor drives and controls necessary to move the scope into position. On top of this is a large pedestal consisting of a base section fixed to the platform and a head section or trunnion mounting. The trunnion mounting also built by Fairchild holds the entire optical system and provides it with movability through two axes.

ANIMATION TECHNIQUES

(Continued from Page 672)

the line would have to be put in a lat at a time and a very tedious job would result. The real advantage of shooting backwards will be seen when we get into the work itself.

Let us suppose we are doing a travel film and we want to add a professional touch to it. With animation we can make an insert and show on a map where our trip took us. The trip is a triangle cruise from New York to Bermuda and thence to Nassau and back to New York again. After showing scenes of the departure from New York and some of the activities on the ship, a short scene of animation showing geographically where the ship is going would be an interesting change to show our audience where the film was taking us. This is the purpose of the animation. Now for the technique.



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The background, in this case a map, is securely fastened to a firm base, for if the background shifts while the various frames are being photographed, a jumpy sequence will result. Use a mounting board or artist's board for the base and rubber cement for binding the two together. The background should be made a little larger than the area you will actually film.

The various cells which are put over the background must all line up perfectly. To assure smooth action in the finished sequence, punch registration holes in the background and in the cells; when they are assembled for shooting, background and cells are put on accurately located pegs so that perfect registration will result. A good substitute for registration pegs, and entirely adequate for a 2 or 3 cell job, is Scotch masking tape. In our project only two cells will be used, and they can be taped to the background—each cell to a different edge of the background—and lifted in and out as desired, as shown in Fig. 1.

To secure the first cell over the background, tape it to the top edge of the map to prevent it getting out of register. All three legs of the journey are painted on the cell. Artist's water-mixed paint is used, as this can easily

be scratched off without marring the cell itself. To scratch off the paint a cotton stump pencil or an orange stick is used. All of these items, including the cells, are obtainable at artists supply stores, except the orange sticks which can be obtained at a drug store. The paint is a chalky paste-like substance and is made by Grumbacher and also by F. B. Miller. It is thinned down to a usable consistency with water. If the paint does not go on the cell smoothly, dissolve a small amount of detergent in the water. Either black or white paint can be used, or, if you want to put more color into your picture, a color which harmonizes well with the background may be used, such as yellow, orange or red. The first cell, with the route drawn or painted on it, we will call Cell A.

Because we are going to Bermuda and to Nassau, we decide to "high-light" these names on the map. This is done by laying another cell over the map and taping it securely in place at the left hand edge. This we will call Cell B. It is taped at the left-hand edge so that the cell can be folded in and out. With white paint the word Bermuda is outlined carefully on the cell while it is held in register. For keeping the cell in register a small piece of tape

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can be put on the other three sides while it is being painted and while it is being shot. Cell C is then taped to the right hand edge, with the tape acting as a hinge, and the name Nassau is outlined on it in white paint. Once the highlights have been painted in, the cells should not be removed from the background unless there is some means of replacing them in perfect register, although they may be folded back on their tape hinges.

The art work is now done, and the scenes are ready to be shot. There will be three scenes all together. Chances are that in your film they will be inserted between live footage of happenings at Bermuda and Nassau and your arrival home. The entire shooting can be done at one time, however, and then cut apart to be spliced into your film. This can probably be done more easily if the animated scenes are shot one at a time, but let us, for the purpose of illustration, shoot this whole animated insert as one sequence.

A word of warning here. In any piece of animation, the maximum number of cells to be used over the background should be determined and then that number (in our case two) cells should be used over the background and other art work at all times, even though they do not carry art work, if the number of cells changes, this will

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cause not only the time to change on the screen during projection, but also the color of the art work will change throughout the animation scenes whenever the number of cells is increased or decreased. This means that we will need to have blank cells on hand to replace the highlight cells when they are not over the background.

Next comes the "exposure sheet."

This is the guide which tells us how much footage will be used for each bit of "action." It also tells us how many pieces of action are taking place at one time and where they come in and go out. Few of us have finding devices which are satisfactory for this kind of work, but let us write the exposure sheet as though we did have. Although fades and dissolves are used occasionally for bringing items into a scene, cuts and jump-ins are perfectly adequate in the majority of cases. The length of time each piece of action should last on the screen must be timed carefully with a stop watch or by some other accurate means, and the time in seconds is then converted into feet and frames. We then know the exact number of frames in each sequence or scene (there are forty frames to the foot in 16mm film). An important factor in this timing is the speed, or frames per second, at which the film will be projected—16 or 24 fps. All of the computations on the exposure sheet (Fig. 3) were made for film to be projected at 24 fps. If you intend to shoot at 16 fps you should use 45 of the footage shown here.

In determining how long each bit of action in the sequence should last on the screen, visualization as well as interpretation is essential. For example, in planning for the line that will extend from New York to Bermuda, we have to imagine how fast the line should travel or how long the action should last in going from point to point. The length of the action is timed and converted into the correct number of frames. If for some reason or other we wish to show a languid pace, a slow-moving line should be used and the amount of time and number of frames would have to be increased. If we want to show fast action, the length of time and number of frames would have to be cut down. We have complete control of our medium and our subject—the interpretation that we give it depends on the mood, the theme, or the tempo of our film. (Your experience, and the criticism by your friends on your first attempt will be the determining factor in how you handle this technique.)

To start an exposure sheet, write down symbols and lines representing the action, where it takes place, and

the amount of time (in frames) that it lasts. Put the footage and the number of frames along side each bit of action or "hold" footage. (4th indicates four feet plus eight frames) "Hold" footage is footage during which no action takes place; it is essentially a time element, which gives it its name.

Beside the line and symbols for action, insert a complete description of what takes place in that footage and how it takes place. Notice that where you are shooting the background alone there is one action line; where you are shooting the background plus the route line (an additional cell there are two lines); and when the highlight is added to the background and route cell there are three lines. This is to show you when you are shooting more than one item, and how many cells you are actually using. Remember also that when you "pop out," or take out the highlight cell suddenly, a blank cell must be put in its place, as the density of the clear cell, no matter how slight, will affect the brightness or darkness of your picture, as previously pointed out. (To be continued in December issue.)

"ANASTASIA"

(Continued from Page 662)

This scene sets the mood for "Anastasia," with the depressing rain and Miss Bergman's sad, distressed appearance contrasting with the warm light from the church and the hopeful Easter spirit of the worshippers with their candles.

Simplicity in lighting is the key to creating strong mood, and Hildyard exemplified this in every camera setup for this important sequence. His dramatic scenes show how it is not always necessary to have the players fully illuminated through every foot of film, that they should be allowed to move from full light to half-light to silhouette as they would in real life. It is in this way that camera mood becomes a fluid dramatic force.

Mood in "Anastasia" was also enhanced through the wide compositional format of CinemaScope. On the wide picture area, foreground objects were made to loom importantly in the composition, not only in order to frame the background action, but to provide dramatic emphasis within the scene.

Although many scenes for the picture were filmed in Paris, as well as in Copenhagen and London, Director Anatole Litvak was unable to obtain permission to use the actual St. Alexander's Cathedral as a location site. The Cathedral is one of three Russian Orthodox churches in Paris. Litvak had the Cathedral photographed with a still camera from all

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THRILL SHOT

(Continued from Page 665)

to give the chase a dramatic pictorial punch and conceived the idea of a dramatic low-angle camera shot of the oncoming Indian horde.

Ford and Hock, who has photographed most of John Ford's pictures in recent years, got their heads together and worked out the shot and means for making it right on location. Sometimes shots of this kind are made by placing the camera in a shallow, partially-covered pit and operating it by remote control. But wishing to maintain VistaVision's traditional sharpness and depth of field in this important shot, it was decided to have the operator and assistant handle the camera in the pit.

A deep pit was dug and shared up with heavy timbers, then roofed over with double timbers, leaving a small opening for the Technicolor VistaVision camera, as shown in the lower photo on page 665. The underground structure then was covered over with earth, leaving only the narrow camera opening and the camera itself showing.

Anticipating that the horses might shy away from the camera and go around it, backing timbers were erected in a fence-like structure at either side of the pit, so as to funnel the horses and riders into camera range and lead them directly over the camera.

Before the take was made with the cameramen in the pit, the action was rehearsed a number of times. At first the horses shied away from the camera, but this was remedied by covering it with a blanket. Then, to get the horses to rise and jump directly over the camera—both for improved dramatic effect of the shot and to safeguard the camera—a timber was placed low across the narrow exit of the funneling fence-work, as may be seen in the top photo.

Director Ford made just one take, and was happy to get it without a mishap. During the shot, one horse kicked the top of the film magazine, causing the camera to tilt upward in its cradle. Fortunately no harm was done to the horse, camera or either of the cameramen in the pit; but the latter got a shower of sand that gave them some uncomfortable moments. Luckily, the horse that struck the camera was among the last to go over, and there already was sufficient footage for an acceptable take so that the latter part could easily be deleted.

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ELECTRONIC SPLICING

(Continued from Page 643)

of fusion in about one second's time. There is no warping nor weakening of the film, since heating is concentrated at the joint itself. As the current flows, it lights a small neon glow lamp (2, Fig. 1) coupled to the circuit inductively; when it stops the light goes out. The operator then knows that the splice has been effected and he releases the button.

The component parts of a prototype model of the dielectric unit, designed to be installed on a Bell & Howell professional splicer, are shown in Fig. 1. The power supply is designated 2, the oscillator box 3 and the special lower left-hand splice plate 4. The push button 6 and neon lamp 7 have already been mentioned.

Fig. 2 shows the components installed on a Bell & Howell professional splicer. The power supply is mounted on the rear of the pedestal at 11, and the oscillator box with control button and indicator light is positioned just below the splicer jaws at 9. The four special plates are also shown in their proper arrangements. The springs 10 provide positive sheet path grounding of the upper jaws when they are closed, necessary for proper operation of the oscillator.

Test splices made on Du Pont's prototype dielectric unit have shown extremely good projection performance. For example, a cellulose triacetate roll containing 100 weld-type splices was projected 500 times in a high-intensity projector at one-hour intervals without splice failure. A roll of Cronar film containing 10 dielectric splices was projected and rewound 1,000 times at one-hour intervals without a single splice failure.

"We foresee the need of further development work to arrive at a unit which is engineered from a production point of view," said Wilton B. Holm, who presented a paper describing the method at the recent semi-annual convention of the Society of Motion Picture and Television Engineers, held in Los Angeles last month.

"Also," Holm continued, "some technical problems remain, the most important of which is 'bleed-out' of fused film around ends of the splice."

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ment, introduced its Neumade-Shepard electronic splice which operates essentially as does the DuPont equipment. Whereas the latter is a unit intended to be adapted to existing professional film splicers, such as the Bell & Howell and others, the Neumade-Shepard is a complete unit. It also was demonstrated at the S.M.P.T.E. convention in Los Angeles. It is a table model 15" x 15" x 11" and weighs 25 pounds. With interchangeable plates, 5mm, 16mm and 35mm films may be spliced on the one piece of equipment.

FILM FESTIVAL

(Continued from Page 875)

amateur film makers. On each program, at least one film maker whose effort shown will be brought to the television studio for interview.

Films will not be shown on a competitive basis. Mr. Schwab's intentions are to bring the amateur films to the public's attention and to search for possible professional talent. Naturally those whose films are selected for presentation will receive important recognition, not money, film equipment, certificates of merit, trophies, presentation on television, trips through professional sound stages, interviews with directors, cameramen, writers, editors, honorary film assignments with studios.

The requirement for acceptance of an amateur film for "Amateur Film Festival" is that the film be the work of a bona-fide amateur. The films can be 8mm, 16mm, or 35mm, sound or silent, black-and-white, or color. There is no limit as to the subject matter (drama, comedy, science, music, travelogue, surrealistic, special effects, etc.), just so long as the film is considered by its creator as a reflection of his talents and worthy of professional criticism. A single scene from a lengthy film can be of representative value.

The major question: "Is there enough exceptional amateur film to sustain a television program through a season of presenting two, three, or more films per show?" In order to attempt to answer this question, screening is now in full swing on all films presented for consideration to Amateur Film Festival, 210 N. La Brea, Los Angeles, Calif.

Upon acceptance, the amateurs whose films have been selected for public presentation will be notified by the Festival committee and requested to sign a waiver to permit the committee to make a work print and, whenever necessary, to add sound music, dialogue, narration—one or all—depending on the needs of the film. The work

print will be used to train the film down to the time allotted the program. The trimming, or editing, is a necessity, but the quality and main intent of the film will be retained, for these are the all-important factors which made the film outstanding and desired. All rights to the original conception of the film are retained by the person, or persons, who created it.

It is Mr. Schwab's desire to highlight the amateur film maker, and to show that he has gone beyond the boundaries of home and family for his subject matter. It is his belief that by bringing these films to the attention of the public and especially the professional, he can fulfil the two-fold purpose of kindling an even wider interest in home movies, and of presenting for recognition the wealth of creative technical and production talent in the amateur film field.

NATURAMA

(Continued from Page 668)

Daniel J. Bloomberg, Republic's Chief Engineer, the studio's engineering department spent two years in tedious, methodical research work to develop and produce an improved anamorphic lens system which is compatible with all other similar wide-screen processes.

Following a study of every anamorphic lens system already in use or in stages of development, Mr. Yates, early in 1955, ordered specially-designed lenses made according to the studio engineering department's specifications. The lens order was placed with one of the leading optical manufacturers of France which had pioneered in the development of wide-screen optics. Following months of technical revision on the original lenses, a small compact squeeze lens was produced which could be used in conjunction with standard Mitchell camera lenses.

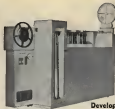
In their effort to improve on existing wide-screen processes, Republic engineers made use of the latest technical knowledge of lens design and the newest types of glass developed for lens manufacture. Preliminary tests indicated greatly improved resolution and definition, with a specific lack of graininess.

Republic's Naturama system is unique in that it is the first to employ an adaptor attachment which controls the simultaneous focusing of both the anamorphic and the camera lens. As far as is known, this type of control has not been attempted or perfected by any of the other major studios presently using anamorphic lenses in cinematography. Where anamorphic lens attachments have been used, it usually has been necessary for two camera assistants

to individually focus the anastigmatic lens and the camera lens when making follow-focus shots. Inaccuracies in focusing often occurred because of the human element of error thus introduced. With Natarsens photography, only one camera assistant is required to handle focusing of both lenses, which is afforded by the single control.

The Natarsens wide-screen lens mount and its focusing mechanism were designed especially for use on the Mitchell NC and BNC cameras, which are the cameras used at Republic studios. The anastigmatic lens (4, in Fig. 3) is held in close proximity to the camera lens (5 in Fig. 3) by a special bracket, which requires only slight adjustment of the Mitchell camera case exterior. The bracket is shown in 7 in Fig. 4, along with the focusing linkage that couples both lenses and affords synchronous focusing.

The focusing mechanism for the Mitchell NC camera differs slightly from that designed for the BNC, as may be seen in Figs. 1 and 2. For the BNC, the gear train has been re-arranged and enclosed; otherwise it functions the same as the NC arrangement. Focusing control is by means of the single knob (6, Fig. 3), which turns the gears meshed with the lens gear ring and at the same time moves the cam (3, Fig. 2).



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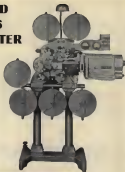
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(Continued on Page 894)

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PHOTOGRAPHIC ASSISTANTS

(Continued from Page 691)

• **MELTON KRAMER, ASC**, (coloring in Green): *CinemaScope*, DeLuxe color, "They're a Doleful," with Alan Ladd, Clifton Webb and Sophia Loren. Jean Nusseisen, director.

• **JOHN BOYER, ASC**, "The Baddest Breed," (Eastmancolor, National Pictures) with Scott Brady and Anne Bancroft. Allen Davis, director.

• **FREDERICK TOLSON, ASC**, "Island in the Sun" (CinemaScope & color, shooting in D.W.I.) with James Mason and Joan Fontaine. Robert Hamner, director.

• **BYRON BAKER**, "Man From Alhambra," (Evidy-Glasser Prod.) with Scott Brady and Male Peters. Edward Bond, director.

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• **RUSSELL MOTT, ASC**, "Man Afraid," (CinemaScope) with George Nader, Tim Hovey and Phyllis Thaxter. Harry Keller, director.

• **WILLIAM DUNSTER, ASC**, "Black Passage," (TriStar) with James Stewart and Duane Porter. James Nelson, director.

• **ELIAS CARTER, ASC**, "The Last Unknown," (CinemaScope) with Jack Hadeney and Shawn Smith. Virgil Vogel, director.

• **ARTHUR ALLRED, ASC**, "Pay the Debt," (CinemaScope) with Jeff Chandler and Orson Welles. Jack Arnold, director.

• **IRVING GLASSBERG, ASC**, "Lee Remick's First," (CinemaScope) with General Motors commercial. Ed Cowan, director. Kellogg commercial. Jack Daniels, director.

• **CHARLES WALSHORN**, "Ford Commercial," John Sherman, director.

• **JAMES DROUGHT**, "Ford 1957 Commercial," Ed Cowan, director.

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• **ARTHUR J. ORNSTEIN**, "If You Managed Millions," (Industrial Film, Calvin Belluck & Co.) Jack Daniels, director.

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• **STANLEY CRATER, ASC**, "Melville Goodwin, U.S.A.," with Susan Hayward and Kirk Douglas. H. C. Fenn, director.

• **JACK LAROFF**, "The Sleeping Prince," (CLOP Productions shooting in London) with Maudie Monroe and Laurence Olivier. Lea Renee Olson, producer-director.

(Continued on Page 695)

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